

IN THE CLAIMS

Please amend the claims as follows.

Claims 1-20 (Canceled)

21. (New) A system, comprising:

an Input/Output (I/O) control circuit to control transfer of data between a memory and an I/O device; and

a prefetch circuit to prefetch a data block into the memory in advance of a subsequent read made from the I/O device, wherein the data block is prefetched from a predicted address of the I/O device based on a preceding address associated with a previous read from the I/O device, and wherein the subsequent read is tracked to determine if the subsequent read reads from the predicted address.

22. (New) The system of claim 21 further comprising, a state machine to adjust an additional predicted address associated with additional subsequent read made from the I/O device based on whether the subsequent read reads from the predicted address.

23. (New) The system of claim 21 wherein the prefetch circuit is included within the I/O control circuit.

24. (New) The system of claim 21 wherein the prefetch circuit is an interface for a processor, the memory, and the I/O device.

25. (New) The system of claim 21 wherein the predicted address begins within the I/O device at a location that immediately follows the preceding address plus a length of a preceding data block associated with the previous read plus 1.

26. (New) The system of claim 21 wherein the prefetch circuit continues to prefetch additional data blocks associated with additional subsequent reads made from the I/O device at additional predicted addresses as long as the additional subsequent reads continues to at least partially match the additional predicted addresses.

27. (New) The system of claim 26 wherein if the additional subsequent reads do not at least partially match the additional predicted addresses, then the prefetch circuit biases against prefetching and performs periodic checks to determine if biasing in favor of prefetching should resume.

28. (New) A system, comprising:
a processor;
an Input/Output (I/O) device; and
a prefetch interface to prefetch data from the I/O device in advance of a request made by the processor for that data, wherein the prefetch interface predicts an address needed within the I/O device to satisfy the request, and wherein the prefetch interface tracks its performance and biases in favor or against prefetching additional data in advance of subsequent requests based on success rates.

29. (New) The system of claim 28 wherein the prefetch interface adjusts subsequent predicted addresses associated with subsequent requests when at least a portion of the prefetched data satisfies the request.

30. (New) The system of claim 28 wherein the prefetch interface is self-configurable to determine when to bias in favor or prefetching and when to bias against prefetching based on moving averages associated with the success rates.

31. (New) The system of claim 30 wherein the prefetch interface includes a state machine that performs the tracking and self-configuration.

32. (New) The system of claim 31 wherein the state machine includes a first state where prefetching takes place and a second state where prefetching is suspended.
33. (New) The system of claim 32 wherein the state machine includes a third state that biases towards prefetching and a fourth state that biases towards not prefetching.
34. (New) A method, comprising:
 - prefetching a data block for a predicted address within an Input/Output (I/O) device in advance of a read request made from a processor;
 - tracking a success rate of the predicted address when the request is made by the processor; and
 - adjusting the prefetching for subsequent predicted addresses based on the success rate in advance of subsequent read requests made by the processor.
35. (New) The method of claim 34 further comprising biasing in favor of not performing the prefetching when the tracking demonstrates an unacceptable success rate.
36. (New) The method of claim 34 further comprising biasing in favor of the prefetching when the tracking demonstrates an acceptable success rate.
37. (New) The method of claim 34 wherein prefetching further includes predicting the predicted address based on a prior read request made by the processor.
38. (New) The method of claim 37 wherein the predicting further includes using a prior address within the I/O device associated with the prior read request to predict the predicted address.

39. (New) The method of claim 34 wherein the tracking further includes defining the success rate to include partial success where at least a portion of the prefetched data block satisfies the read request.

40. (New) The method of claim 34 wherein the adjusting further includes processing a state machine to bias in favor of performing the prefetching or to bias against the prefetching.